

## NEW GENERA AND SPECIES OF MARINE DECAPODA BRACHYURA.

From the Coasts of New South Wales and Queensland.

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## Subtribe OXYSTOMATA. Family RANINIDAE.

## Genus LYREIDUS de Haan.

*Lyreidus* de Haan, Crustacea in Seibolds Fauna Japonica, 1841, 14b. Haplo-type *L. tridentatus* de Haan. Type loc., Japan.

*LYREIDUS AUSTRALIENSIS* sp. nov.

Pl. xxiii., fig. 10.

*L. tridentatus* Haswell (nec. de Haan), Cat. Aust. Crust., 1882, 144. Port Stephens, N.S.W., and outside the heads of Port Jackson, N.S.W. *Idem*. Whitelegge, Mem. Aust. Mus., iv., 2, 1900, 165.

The Australian species, which has been confused with the Japanese species ever since it was first discovered, is readily separated from *tridentatus* in the following series of characters:—

1. The orbits extend further back on the dorsum of the carapace.
2. The carapace is broader in *australiensis*.
3. The sternum is broader in *australiensis*.
4. Fifth segment of the male abdomen is longer and narrower in *australiensis*—almost twice as long as the preceding segment.
5. The chelae of *australiensis* are longer and more slender, the immovable finger more constricted at the base, the mobile finger is more robust.
6. The dactyli of all the ambulatory legs are more slender.

*Lyreidus australiensis* is usually obtained by the trawlers on the continental shelf in depths up to 100 fathoms.

Material.—In order to avoid confusion I designate as holotype a male, figured on plate xxiii. Carapace: Length, 44 mm.

Locality.—Within a radius of 10-15 miles of Newcastle, N.S.W., 45-50 fathoms. November, 1931. Coll. by Captain Moller on Trawler Goolgwai.

## Family LEUCOSIIDAE. Subfamily LEUCOSIINAE.

## Genus CRYPTOCNEMUS.

*Cryptocnemus* Stimpson, Proc. Acad. Nat. Sci. Philad., x., 1858, 162 (60).

Type *C. pentagonus* Stimpson, loc. cit. and Smth. Misc. Coll., 1907, 163, pl. xiv., fig. 56. Type locality, Japan.

*CRYPTOCNEMUS PLANUS* sp. nov.

Pl. xxii., fig. 7.

\* Type male, 6 mm., total carapace width. Type locality: Lady Musgrave Island, Bunker Group, Queensland. Dredged in the deeper parts of the lagoon.

Description.—The carapace is wider than long, hexagonal; all the margins are strongly upturned and finely granular.

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\* The types of the species described in this paper are housed in the Australian Museum, Sydney.

A faint ridge extends for a short distance back from the middle of the front on the dorsal surface of the carapace.

The frontal distance between the points of the hepatic protuberances are equal to the posterior margin. In this respect, the species differs from *C. crenatus* Grant and McCulloch, and *C. pentagonus* Stimpson.

The postero-lateral margins are equal to the antero-lateral, in which respect the species again differs from the two closely allied forms.

There is a curving line of granules on the dorsal surface of the manus which commences near the proximal lower angle and ends near the articulation of the dactylus; with the outer margin it forms an oval concave area. The lower margin of the immovable finger is outlined with acute tubercles.

#### Subfamily PHILYRINAE.

##### Genus LISSOMORPHA *gen. nov.*

The carapace markedly broader than long; is strongly convex longitudinally and laterally; a broad smooth ridge extends from the base of the frontal region to near the posterior margin. The sides of the carapace form an eave which does not conceal the ambulatory legs. The buccal cavity is nearly square, as that part of the exognath adjacent to the merus of the endognath, is broad, swollen, and globular. The merus extends almost to the broad septum which separates the antennular lossae. The antennules are transverse and are well developed. The orbits are entire and the eyes fit closely, so that little movement is possible. The pterygostomian regions are vastly excavated.

##### LISSOMORPHA HASWELLI *sp. nov.*

##### Pl. xxi., figs. 5-6a.

Holotype female 9 mm. wide. Type locality: Off Gatcombe Head, southern end of Facing Island, Port Curtis, Queensland. June, 1929.

The unique female specimen on which the description is based was collected in shallow water with the aid of the naturalist's dredge upon a ground composed largely of broken shells and gravel.

Description.—The antero-lateral margin of the carapace is entire, sinuous, and as long as the postero-lateral; the lateral angles of the carapace have a patch of stiff hairs which spread along the branchial regions and over the general surface of the carapace.

The posterior margin is thick, raised, and smooth; a strongly developed granular ridge extends along the sides of the carapace and is filled with soft, short, thick hairs which extend on to the proximal third of the chelipeds.

The meri of the chelipeds are short and thick, irregularly nodular, but not granular; a large crater-like pit at the external distal extremity; the lower margin has large irregular nodules, and the lower surface has some large, flat smooth granules behind the large marginal nodules.

The carpus is small and globular and has a smooth outer carina.

The manus is short, swollen and strongly punctate. The upper and lower margins are carinate and entire. The dactyli are slightly arched, with a small entire carina along the upper surface.

The meri of the first three pairs of ambulatory legs have the upper margin thin and lined with granules, and there is a second line slightly lower on the outer surface. The carpus has a curved, thin, carina; the propodus has a well-developed carina, leaf-like in formation. The dactyli are slender and acute, and longer than the preceding article.

The abdomen of the female has three segments; the second to the sixth are fused. Broad, deep grooves outline the fused segments, but are interrupted in the middle.

The general appearance of this species suggests *Leucosides* Rathbun, but the form of the buccal orifice and the endognaths of the external maxillipeds and the vast excavations of the pterygostomian regions separate it from that genus.

Subtribe BRACHYGNATHA. Superfamily BRACHYRHYNCHA. Family EURYALIDAE.

Genus JONAS.

*Jonas* Jacquinot and Lucas, in Dumont D'Urville's Voy. Pole Sud, "Astrolabe" and "Zelee," III., Crust., 1853, 85.

Haplotype *Jonas macrophthalmus* Jacquinot and Lucas, tom. cit., 88. Type locality: New Guinea. From the bellies of fish.

*Jonas* is readily distinguished from *Gomeza* Gray, by the greater development of the orbits, the more sunken epistome and antennular regions, and by the more elongate carapace and smaller lateral spines. The *Corystes* (*Oeidea*) *distincta* de Haan, should be placed in *Jonas* Jacquinot and Lucas. The varieties of *distincta* described by Balss <sup>(1)</sup> and McGilchrist <sup>(2)</sup> are in all probability distinct species. *Oeidea* de Haan is considered to be a synonym of *Gomeza* Gray (*vide* Alcock).

1. *Gomeza distincta* de Haan, var. *formosae* Balss, Zool. Anz. Bd., liv., 1922, 4.
2. *Gomeza distincta* de Haan, var. McGilchrist, Ann. Mag. Nat. Hist (7), xv., 1905, 263. Persian Gulf.

*JONAS LEUTANUS* sp. nov.

Pl. xxiii., fig. 8.

Holotype male measuring 30 mm. from the tip of the rostrum to the posterior margin of the carapace.

Type locality.—Lindeman Island, Cumberland Group. Dredged on a mud bank in 5-8 fathoms. December, 1928.

Description.—The carapace is elongate, regularly convex, both longitudinally and transversely, and its surface is covered with fine spinules, each with a forward inclination; these are not hidden by the coat of fine adpressed hairs. A median row of five low elevations extends from the posterior part of the gastric area towards the posterior margin. The bases of these elevations are outlined by a sinuous sulcus which commences in the closed fissure of each orbital margin, and continues unbroken, meeting between the third and fourth elevations. The lateral margins of the carapace are lined with ten forwardly directed spines, including the external orbital angles. The spines diminish in size towards the posterior margin. The front is composed of a broad, bifid median spine, having broad U-shaped hiatuses on each side, between it and the supra-ocular margin, except the last, which marks the junction with the posterior spines; the basal articles of the antennae fill these hiatuses. The orbits are large and with a dorsal inclination; there are three large spines surrounding the eye—one very large, one on the inferior margin, one at the external angle, and one above at the internal angle; there is a broad hiatus between the superior and the lower inner orbital angles. Antennules are well developed and hidden beneath the front. The antennae is almost as long as the carapace, fringed with long hairs.

The epistome is narrow and short, not strongly developed. The external maxillipeds close the buccal orifice completely; there is a well-developed

forwardly directed spine at the anterior angles of the buccal orifice. The subhepatic and pterygostomian regions are clothed with long hairs.

The chelipeds are well-developed, not quite as long as the carapace; the merus has long hairs and three spines on the dorsal margin; the carpus is triangulate; the apex below at the juncture with the merus; the dorsal surface is covered with salient spinules and a large upwardly curved spine on the inner margin. The lower margin of the manus is three times the length of the upper margin; the outer surface is covered with rows of spinose tubercles and long hairs; the inner surface is granulated and covered with long hairs.

The ambulatory legs are flattened and the articles are unarmed; their margins fringed with long hairs.

The male abdomen is divided into four segments—the second of which has two large bosses; the fourth segment is very small.

The holotype has been compared with a specimen of *Jonas distincta* (de Haan) from Japan in the collection of the National Museum, Washington. The following characters were noted:—*Jonas distincta* is a shorter and broader species, with a different type of granulation on the carapace; the elevations are more strongly developed.

*Jonas distincta* (de Haan).

Male: 26 mm. long. Japan.

Lower internal orbital spines advanced as far as the dorsal.

The ten lateral spines are produced laterally, 1 to 3 well developed, more so than the external orbital spine.

Three distinct longitudinal ridges on the dorsum of the carapace; larger granules.

Penultimate segment of the male abdomen very short.

*Jonas leuteanus*.

30 mm. long. Queensland.

Lower orbital spines produced beyond the dorsal. Lower floor of the orbit is more advanced than in *J. distincta*.

1 to 3 are smaller than the external orbital spine and not as laterally produced as in *J. distincta*.

Three ridges are not so strongly developed; granulation covers more of the carapace than in *J. distincta*.

Penultimate segment longer; half as long as the first.

Family PORTUNIDAE. Subfamily PORTUNINAE.

Genus GONIONEPTUNUS.

*Gonioneptunus* Ortmann, Zool. Jahrb., vii., Abth. f. Syst., 1894, 79. Haplo-type *G. subornatus* Ortmann. Type locality, Japan. = *Portunus* (*Thalamita*) *truncatus* de Haan.

GONIONEPTUNUS WHITELEGGEI sp. nov.

Pl. xxiii., figs. 1 and 2.

*Gonioneptunus subornatus* Whitelegge (nec. Ortmann), Mem. Austral. Mus., iv., 2, 1900. Trawled between Botany and Wata Mooli, N.S.W. 50-71 fathoms. H.M.C.S. Thetis.

The following notes of comparison between the specimens before me and the figure in de Haan's Crustacea, Siebold Fauna Japonica, are sufficient to separate the two species, and I take the opportunity to note that the figures published in the Fauna Japonica are reliable reproductions of the species represented. I have had good fortune in being able to examine collections of Japanese species housed in museums abroad, and by critical comparative study of specimens and figures, found them correct to the minutest detail.

1. The proportions of the carapace are different—*G. whiteleggei* is three-quarters as long as broad; *G. subornatus* is two-thirds as long as broad.
2. The male abdomen is narrower in *whiteleggei*; the penultimate segment is long and narrow.
3. The front is one-third the breadth of the carapace in de Haan's figure. The front is less than one-third of the carapace in *whiteleggei*.
4. The transverse ridge from the last antero-lateral tooth is more arched in *whiteleggei* than in *subornatus*.
5. de Haan's figure does not display the strong sculpturing on the carapace which is characteristic of *whiteleggei*.
6. The process on the basal antennal article which fills the orbital hiatus is broader in *whiteleggei* than in Ortmann's figure, *tom. cit.*, pl. iii., fig. 9.

Material.—In order to avoid confusion, I designate as holotype the male, 44 mm., carapace width, figured on pl. xxiii., figs. 1-2.

Locality.—Within a radius of 10-15 miles, off Newcastle, N.S.W., 45-50 fathoms. November, 1931. Coll. Captain K. Moller on the trawler Gool-gwai.

#### Subfamily LIOCARCININAE.

#### Genus AENEACANCER nov.

The nearest ally of *Aeneacancer* is *Ovalipes* Rathbun, from which it is readily distinguished by the presence of two transparent areas in the dorsal surface of the carapace, near the posterior margin, and which I have called the tympana in the description of the species. Other important characters separate the two genera, and the following list of comparative notes have been compiled from an examination of a specimen of *Ovalipes ocellatus* (Herbst), the typical species collected on the coast of New Jersey, U.S.A.

1. The presence of a stridulating mechanism in *Aeneacancer*.
2. The external maxillipeds are more robust; merus only slightly produced at the antero-external angle in *Aeneacancer*.
3. The orbits are larger in *Aeneacancer*.
4. The regions of the carapace are more deeply marked in *Aeneacancer*.
5. The fronto-orbital region is equal to half the width of the carapace and is produced beyond the outline of the antero-lateral margin in *Aeneacancer*.

#### AENEACANCER MOLLERI sp. nov.

Pl. xxiii., fig. 11.

Holotype male measuring 54 mm. in total carapace width. This is a damaged specimen, having a cheliped and several walking legs missing.

Type locality.—South of Montague Island, N.S.W. Taken in the trawl operating in approximately 40 fathoms on sand. Collected by Captain K. Moller, "Durraween," in August, 1929.

A further series has subsequently been obtained by the same collector on a ground east of Port Jackson, N.S.W., in 110 fathoms, on a circumscribed area, possibly only a few miles in extent. It is interesting to note that so far the female is unknown.

Description.—The length of the carapace is equal to approximately five-sixths of the breadth. The dorsal surface is uneven and the gastric areas are indicated by broad indistinct sulci; the two longitudinal depressions which lie on each side of the cardiac region are well marked. The central portion of the carapace is densely granulated, the granules becoming more scattered toward the lateral margins; the surface adjacent



to the posterior margin is smooth. There is an indistinct longitudinal ridge extending from the posterior margin which becomes lost in the convexity of the cardiac area.

The antero-lateral margin is shorter than the postero-lateral and is armed with four teeth, excluding the outer orbital angle; the first tooth is the smallest of the four. There is a fringe of hairs which extends just below the antero-lateral margin from the inner angle of the lower orbital border to the last tooth of the antero-lateral margin.

The postero-lateral margin is defined for one-half of its length by a granular ridge, which dwindles and disappears between the second and third walking legs, and is followed posteriorly by a smooth concave area which extends almost to the tympanum on the dorsal surface and to the lower edge of the epimeral wall.

The posterior margin is raised and outlined anteriorly by a row of uniform granules; it extends on each side of the carapace only past the base of the swimming leg.

The fronto-orbital border is equal to half the width of the carapace and is produced beyond the curve of the antero-lateral margins. The front is equal to the orbit in width and is armed with four spines; the two median ones are placed close together and are produced; the other two mark the lateral angles of the front and are very small.

The upper margin of the orbit is granulated and has only one cleft; the inner and outer angles are developed into long acute spines; the outer is more produced than the inner spine. The lower orbital margin is coarsely granulated and clothed with longer hairs than those on the upper margin. The inner angle is developed into a spine which is longer than other orbital spines. The orbits are large and deep, and the orbital hiatus is a little more than one-third the greatest width of the orbit; the antennae almost fill the orbital hiatuses and are free and movable. The antennules are large and unprotected by the front.

The epistome is sunken and hidden by the external maxillipeds. The buccal orifice is quadrate and completely closed by the external maxillipeds.

There is a ridge of elongated granules on each side of the body, extending parallel to and just below the line of demarcation between the sub-nepatic and pterygostomian regions; these serve as stridulating organs; and sound is produced by friction of the prolongation on the bases of the chelipeds against the ridges.

The maxillipeds are smooth; the merus is as long as the inner margin of the ischium. The anterior margin of the merus is very oblique; its outer angle rounded. The opposed edges of the meral articles are clothed with long stiff hairs.

The male abdomen is divided into six segments—the first two are each crossed by a strongly developed carina and are visible from above; the penultimate segment is the longest, and the last is set in a broad cleft in the anterior margin of the penultimate.

The chelipeds are elongated; the merus extends beyond the antero-lateral border for more than half its length; the dorsal surface is divided distally into two unequal facets by a longitudinal ridge which is covered with granules. The anterior facet is the broader and is smooth to the unaided eye; the posterior facet slopes steeply to the thickened border which is ornamented with scattered granules and hairs; the anterior margin is armed with four or more pro-curved small spines. The carpus is armed with three acute spines—one at the inner angle, one above the articulation with the manus, and one on the outer border opposite the spine on the inner angle. The manus is triprismatic; the dorsal surface has a median row of irregularly placed granules; the inner margin is more curved than

the outer margin and is armed on the distal half with five pro-curved acute spines (the series from east of Port Jackson have four instead of five spines); the proximal half of the margin is rounded and coarsely granulated; the outer margin is thin and granulated. The outer surface is minutely granulated, and there is a faintly marked longitudinal carina above the mid-line of the facet. The dactylus is triprismatic and longer than the upper margin of the manus; the upper surface is flat; the inner margin armed with four long pro-curved spines; the outer margin is granulated; the outer surface is faintly grooved. The opposed edges of the dactylus and immovable finger are armed with tricuspidate teeth, each of which fit into the space between the teeth of the opposing side.

The ambulatory legs are long and slender; the merus slightly compressed and ornamented with a fringe of hairs of distally diminishing length on the upper margin. The propodus is smooth and compressed; its upper margin carinated; there are three longitudinal rows of punctae on the broad surfaces.

The dactylus is slightly curved and almost as long as the two preceding articles together; the upper and lower margins bluntly carinated, and there are four rows of punctae—two on each of the broad surfaces.

The fifth legs are shaped for swimming and are unarmed; the margins of the articles are ornamented with fringes of long hairs, especially the lower margins of the propodus and dactylus.

Family XANTHIDAE. Subfamily ETISINAE.

Genus *PARAETISUS* *gen. nov.*

*Paraetisus* differs from *Etisus* H. Milne Edwards, to which it bears a superficial resemblance by having the fronto-orbital border more advanced; the front more advanced and transversely convex; the antennules more longitudinally directed and the buccal cavern much more elongate.

*PARAETISUS GLOBULUS* *sp. nov.*

Pl. xxiii., fig. 7.

Holotype male measuring 43 mm. total carapace width.

Type locality.—Gatcomb Head, Facing Island, Port Curtis, Queensland. Dredged in 10-15 fathoms on broken shell. June, 1929.

Description.—The carapace is broader than long; strongly convex in both directions. The gastric regions are faintly delimited, but the grooves on each side of the mesogastric regions are anteriorly distinct. The hepatic region is tumid and separated from the protogastric and the branchial regions by broad deep sulci. On the anterior portions of the protogastric areas there are numerous tubercles which are very strong in the \* immature.

These tubercles are also found on the hepatic and near the antero-lateral margins. The antero-lateral margins are strongly curved, quadridentate, excluding the external orbital angle; the first tooth is subacute and spiniform though blunt; the other three teeth are broadly triangular. The front is narrow, produced, divided into two obliquely truncated teeth, the lateral angles of which are more advanced than the median. The slit-like notch bisecting the front extends almost on to the dorsum of the carapace.

The chelipeds are short and nodular. The ambulatory legs are short, thick and granulated on the distal articles.

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\* One small badly damaged specimen was collected at Albany Passage in 1928, where it was taken in the dredge in shallow water.

## Subfamily ACTAEINAE.

## Genus ACTAEA de Haan.

*Actaea* de Haan, Crust. in Siebold's Fauna Japonica, 1833, 4 and 18.

*Actaea* de Haan, Rathbun Bull., 152, U.S. Nat. Mus., Washington, 1930, 250.

Logotype *A. savignyi* (H. M. Edw.), 1834. Type locality: Red Sea.

*ACTAEA CAPRICORNENSIS* sp. nov.

Pl. xxii., figs. 1 and 2.

Holotype male measuring 13 mm. in total carapace width.

Type locality.—North West Island, Capricorn Group, Queensland. The specimen was taken from a mass of living corals brought up on an anchor from deep water outside the reef. November, 1927.

Description.—The carapace is more than half as long as it is wide. The dorsal surface is very areolated; over thirty areolae formed by groups or clusters of large smooth, partially fused granules. The inter-regional sulci are deep and filled with a short dense pubescence in which occasional single granules are apparent. The chelipeds and legs are ornamented with groups of granules similar in formation to those on the dorsum of the carapace. The margins of the ambulatory legs are fringed with long hairs.

The species appears to belong in the section of the genus in which *A. fragifera* (White) is found. However, the remarkable granulation which is its outstanding feature is sufficient to separate *A. capricornensis* from its allied species.

## Genus CALVACTAEA gen. nov.

*Calvactaea* may be separated from the allied *Actaea* de Haan by the following characters:—

1. The carapace is convex, not only longitudinally, but also transversally.
2. The lack of regions on the dorsum of the carapace, as implied by the generic name.
3. The antero-lateral margins are entire.
4. The postero-lateral margins are strongly convergent posteriorly.
5. The front is between a quarter and one-fifth as wide as the carapace.
6. The upper orbital margin is not tumid.
7. There are very faint traces of sutures in the upper orbital margin.
8. The basal antennal article is very distinct; the downward prolongation of the front which delimits the antennular fossae is strongly developed.

*CALVACTAEA TUMIDA* sp. nov.

Pl. xxiii., fig. 9.

Holotype female measuring 21 mm. total carapace width.

Type locality.—Sow and Pigs Reef, Port Jackson, N.S.W. May, 1929. Dredged in shallow water.

Description.—The carapace is deep and smooth to the unaided eye; faintly rugose anteriorly and bare; it is very convex longitudinally and transversely so as to appear globular. The regions are undefined, though one or two faint lines extend back from the front; the most apparent is a bifid one which delimits the mesogastric area. Antero-lateral margins are entire and evenly granulated.

The chelipeds are unequal; the left is the larger. The manus is deep and externally smooth; the upper surface is granular. These granules are continued on to the proximal portion of the dactylus.

The species occurs associated with a soft coral, and the holotype was taken from a cavity within the body wall of the coral. Subsequent collect-



ing has shown that the species is comparatively common in the type locality, the larger males and females being found inside the coral, while the small males are found clinging to the outside and apparently cutting their way through the outer wall of the host; the site usually selected is the crotch at the base of one of the branches. The compartments from which the mature crabs are taken from are lined with a tough, dirty brown skin, similar in texture to the normal outer covering, and in some instances extended almost the entire length of the stem of the coral.

A small male has been collected by Captain K. Moller in 50 fathoms off Cape Hawke.

Subfamily PILUMNINAE.

Genus HETEROPILUMNUS.

*Heteropilumnus* de Man, Zool. Jahrb., viii., 1895, 527.

Logotype *H. stormi* de Man. Type locality: West Celebes.

HETEROPILUMNUS GRANULIMANUS *sp. nov.*

Pl. xxii., figs. 3 and 4.

Holotype male measuring 12 mm. in total carapace width.

Type locality.—North West Island, Capricorn Group, Queensland. November, 1927. The species occurs under the living coral on the New Caledonian area of the reef.

Description.—The carapace is broader than long, 12 by 9 mm., and is covered with short, thick tomentum which conceals the areolations. Scattered long hairs are most numerous on the margin of the carapace and limbs. A fringe of long hairs extends across and a little above the margin of the front between the eyes and continued on to them.

When the tomentum is removed the surface of the carapace is found to be smooth with the areolations distinctly delimited by shallow sulci. There are a few granules on the hepatic region near the antero-lateral margin; the granules become more numerous near the postero-lateral margin. The front is 4.5 mm. broad, with a gradual downward slope; the margin is smooth and divided into two lobes by a shallow median fissure. The inner orbital angles are not separated from the front.

The epistome is three times wider than it is long, smooth and without hairs. The anterior margin of the buccal frame is well produced outwardly and has four notches.

The antennules are folded transversely. The external maxillipeds are smooth and bare.

The pterygostomian and subhepatic regions are clothed with tomentum similar to that on the dorsum of the carapace. The eyes are small, well pigmented and fit snugly into the sockets. The upper orbital border has two obsolete fissures and its margin is granular; there is a third fissure below the outer orbital angle; the lower orbital margin is finely granular. The outer orbital angle is produced into a small nodule.

The antero-lateral margin is shorter than the postero-lateral margin and has four teeth. The teeth are separated by shallow grooves each capped by a few granules; the first tooth, which is contiguous with the outer orbital angle, is the broadest, and between it and the second tooth there is a wide V-shaped notch. The second, third, and fourth tooth have their anterior margin shorter than the posterior margins. The fourth tooth is the smallest of the series.

The chelipeds are subequal. The upper margin of the merus is thin and well curved, and it ends in an abrupt tooth near the distal extremity; a groove follows the line of the distal extremity from the base of the tooth to the articulation with the carpus. The carpus is covered externally with

pearly granules between the bases of which arise short stiff hairs intermixed with longer ones. The manus is more than half as high as it is long, and has the outer, upper, and lower surfaces covered with pearly granules tending to form definite longitudinal rows, the interspaces are filled with a very fine short tomentum, and there is a secondary growth of short stiff hairs intermixed with long ones. The granules on the lower border extend on to the proximal end of the immovable finger, but they become obsolescent on the outer side, their place being taken by punctae; there is a continuous line of similar punctae extending along close to and parallel with the lower border.

The dactyli of the chelae are granulated above for half the length; the granules, as on the immovable finger, fading into punctate grooves, one of which extends along the upper surface; the brown colour does not extend on to the manus.

The upper margins of the meri of the ambulatory legs are fringed with long hairs; the other surfaces are smooth and bare; the distal articles are clothed like the carapace, but the longer hairs are more numerous. The dactyli are slender and as long as the preceding article.

#### Subfamily MENIPPINAE.

#### Genus *PROLYBIA* *gen. nov.*

*Prolybia* differs from *Lybia* H. Milne Edwards, in the following characters:—

1. The carapace is broader and flatter in *Prolybia*; the antero-lateral margins are longer than in *Lybia*.
2. The front is more produced and narrower in *Prolybia*.
3. The external maxillipeds are broad in *Prolybia*.
4. The epistome is much shorter in *Prolybia*.
5. The orbits are deeper and more developed than in *Lybia*.
6. The ambulatory legs are short and thick in *Prolybia*.

#### *PROLYBIA AUSTRALIENSIS* *gen. and sp. nov.*

Pl. xxi., figs. 3 and 4.

Holotype female 7 mm. total carapace width.

Type locality.—Bottle and Glass Rocks, Port Jackson, N.S.W., 4/8/1928. The specimen was seated amongst bryozoans on the under surface of a large boulder below tide mark.

Description.—The carapace is broader than it is long. The front is produced and as wide as the antero-lateral margins are long; the margin is straight when viewed from above. The antero-lateral margins are armed with two large well-formed teeth. The orbita are large and the eyes well pigmented.

The body and limbs were clothed with long hairs which were in tufts upon the dorsal surface of the carapace; these were removed in order that the underlying characters might be studied.

The ambulatory legs are well formed and fringed with long hair. The species carries a living actinian in each cheliped, and even the process of killing would not force it to relinquish its grasp; the figure shows the actinians still held fast.

#### *RATHBUNARIA* *gen. nov.*

The status of *Rathbunaria* is at present uncertain; some features point to its affinity with the GONOPLACIDAE, while others place it amongst interesting intermediate genera which connect the GONOPLACIDAE to the XANTHIDAE.

The carapace is broader than it is long, hexagonal and depressed. The

orbits and the eyes are below the plane of the front and antero-lateral margins, and are invisible in a dorsal view. The upper margin of the orbit is in line with the antero-lateral margin of the carapace. The antero-lateral margins are half the length of postero-lateral margins. The buccal cavity is wider anteriorly than posteriorly. The basal antennal article just touches the downward prolongation of the front.

The epistome is deeply sunken, and the anterior and posterior margins are prominent.

The genus is named for Dr. Mary J. Rathbun, of the National Museum, Washington, for whose sympathetic and untiring interest and help I am deeply grateful.

*RATHBUNARIA SCULPTISSIMA* sp. nov.

Pl. xxiii., figs. 5 and 6.

Holotype female 13 mm. in total carapace width.

Type locality.—Thursday Island, Torres Strait. September, 1928. Found under a block of coral on the reef.

Description.—The carapace is flat; the areas are clearly defined and covered with short clavate setae which are arranged in irregularly reticulating lines. On the ambulatory legs these lines of setae stand upon a net work of low ridges. Upon the margins of the limbs the setae are longer but similarly clavate.

The orbits are below the plane of the front, and the antero-lateral margins are invisible in dorsal view. The orbital margin has two faint fissures above, also one just below the outer orbital angle; the lower border is entire; the outer surface is sculptured with irregular pits; these pits extend on to the outer surface of the first antero-lateral teeth. The sub-hepatic region is sculptured like the orbit.

The pterygostomian region is smooth. The chelipeds are subequal and deeply sculptured. The larger manus is as broad as its upper margin is long; the latter has a thick, sinuous crest extending from the articulation of the wrist to its distal extremity. The merus is deeply sculptured on its upper distal portion. The carpus is similarly sculptured and has a long spinate tooth at the inner angle. The crests of long, clavated setae occur on the margins of the manus.

The ambulatory legs are long, sculptured and hairy; the meri are as long as the last two articles together; the dactyli are considerably longer than the preceding article, except in the fifth pair in which all the articles are shorter; the propodi are slightly shorter than in the preceding leg but just as deep; the dactylus is extremely small, less than half the length of the dactylus on the preceding leg, and has a sharp upward curve.

Family CYMOPOLIIDAE.

Genus *MANELLA* Rathbun.

*Manella* Rathbun, Bull. U.S. Fish. Comm., 1903 (issued 1906), III., 837.

Haplotype *Manella spinipes* (de Man). Type locality: Amboina.

*Pleurophricus spinipes* de Man, Archiv. f. Naturges., 53, 1888, 344, pl. xv., fig. 1.

*MANELLA BREVIMANA* sp. nov.

Pl. xxi., figs. 7 and 8.

Holotype male measuring 17 mm. in total carapace width.

Type locality.—North West Island, Capricorn Group, Queensland. December, 1929. Collected from the under surface of a living coral growing at the edge of a pool in New Caledonian zone of the reef.

Description.—The carapace is broader than long, hexagonal. The

antero-lateral margins are very short, less than half the length of the postero-lateral margins, and are armed with three teeth, exclusive of the external orbital angles; the second tooth is strongly bifid; the third tooth is smaller than the first and considerably smaller than the second. The converging postero-lateral borders are armed with ten short acute spines. The posterior margin is armed with twenty-two short, broad, perpendicular spines, alternating in thickness, except the two median ones, which are equal in size; all, however, attain the same height.

The surface of the carapace is areolated; the deep inter-regional sulci are smooth and filled with long curved hairs which do not conceal the granulation on the regions. The granules are arranged as in both the other species of the genus, but are more salient in *M. brevimana*.

The fronto-orbital region is slightly broader than the posterior margin of the carapace; the front is quadridentate; the median notch is broadly U-shaped and has the inner pair of teeth advanced beyond the submedian; they are bifid and narrower than the submedian; the inner of the bifurcated teeth is acute.

The submedian teeth are broader than the median and have entire margins. Both pairs are strongly tilted upwards.

The orbits have two deep notches above. The spines upon the upper border are short, broad and blunt; four are situated between the inner angle and the first notch; two between the first and second notches, and three smaller spines equal in size between the second notch and the outer angle.

The lower orbital margin is broken by two deep notches; the innermost is the deeper and more marked of the two. The inner angle of the lower margin is spinate and produced beyond the corresponding angle of the upper margin and followed by two subequal sharp apices: the last of which forms one side of the deeper notch. There are three small spines between the notches. The outer orbital angle is a broad forward curving spine.

The sternal surfaces appear smooth to the unaided eye but are, in reality, thickly punctate. The segments of the male abdomen are practically fused; the sutures are faintly marked. The lateral margins of the male abdomen are slightly sinuous; the last segment has long hairs which are only visible under a lens.

The chelipeds are unequal and not as long as the carapace; the merus is almost concealed; a strong pro-curved spine is on the posterior margin near the distal extremity. There is a low crest extending not quite the length of the external surface of the carpus.

The manus has the upper surface clothed with fine curved hairs similar to those on the merus and carpus, and has two rows of spines and nodular granules along the upper margin; the external surface is smooth and shining; punctate under a lens; and the punctae tend to form horizontal lines. The inside surface of the manus has a faint patch of granules near the lower border, but there is no vestige of stridulating ridges; the upper margin is half as long as the lower margin. The dactylus is toothed and is more robust than the immovable finger. The immovable finger has a single low tooth which occupies its mid portion.

The smaller cheliped is slender, and both the dactylus and the immovable finger are finely toothed and have the tips spoonexcavate. The ambulatory legs have the meri inflated; all the articles are spinate; the first and last pairs of legs are subequal in length.

While at the National Museum, Washington, I was able to examine the type of *Manella gardineri* Rathbun and specimens of *Manella spinipes* de Man, and compared my type specimen with them. And in the following

key I have noted the more marked differences between the three species. White at the Paris Museum I was able to examine specimens of *Crossotonotus compressipes* identified by A. Milne Edwards. The published figure of this species is good, but one has to examine the actual specimens to appreciate the convexity, which is far greater than in *Manella* Rathbun. While on a recent visit to Rabaul, New Britain, I was fortunate in being able to collect a specimen of *Crossotonotus compressipes*, and in comparing it with the specimens of *Manella* I have noted the following important differences. *Crossotonotus* has a subcircular carapace, as shown in A. Milne Edwards' figure, the margins are not as spinate as in *Manella*. The front is narrower; the dorsal surface of the carapace is more convex and bare.

## KEY TO THE SPECIES OF MANELLA.

<i>M. gardineri</i> Rath.	<i>M. brevimana</i> sp. nov.	<i>M. spinipes</i> (de Man).
Median frontal teeth broad; lateral frontal teeth slightly uptilted.	Median frontal teeth narrow; lateral frontal teeth strongly uptilted.	Median frontal teeth rounded, narrow. Lateral frontal teeth uptilted. Groove between median and lateral pairs greater.
Inner lower orbital angle a bifid spine with truncated tips.	Inner lower orbital angle produced into tridentate spine; each spine sharp.	Inner lower orbital angle produced into bifid spine.
Lower orbital border not strongly spined.	Lower orbital border with strong spines.	Lower orbital border with two slender spines.
Two spines on the eye stalk—the one at end well developed horn-like with strong upward curve.	Two blunt spines on eye stalk—one on distal end; other near edge of the corners. Neither as strong as in <i>gardineri</i> .	Two blunt spines on the eye stalk, but not as developed as in other species.
Granules on carapace low.	Granules on carapace salient.	Granules resemble <i>gardineri</i> .
Abdominal segments of male well marked.	Abdominal segments of male fused; sutures faintly marked.	Abdominal segments well marked.
Hooked hairs on carapace and limbs short. Major chelae longer than the carapace.	Hooked hairs on carapace and limbs long. Major chelae not as long as the carapace.	As in <i>brevimana</i> . Major chelae longer than the carapace; more robust than in either of the other species.
Arm extends more than half its length beyond the antero-lateral margin.	Arm just visible beyond the antero-lateral margin.	Arm s in <i>M. gardineri</i> .
Crest on the anterior margin of the arm five-toothed.	Crest on the anterior margin of the arm three-toothed; more salient than in <i>gardineri</i> .	Crest on anterior margin of arm four-toothed; more salient than in either of the other species.



<i>M. gardineri</i> Rath.	<i>M. brevimana</i> sp. nov.	<i>M. spinipes</i> (de Man).
Wrist with entire crest extending longitudinally along the upper outer surface.	Wrist with crest broken in two; more salient than in <i>M. gardineri</i> .	Wrist with spine and salient crest.
Hand twice as long as broad, widening distally.	Hand broad, short, not widening distally.	Hand twice as long as broad.
Upper margin of hand a little more than half the length of the lower.	Upper margin of hand less than half the lower.	Upper margin of hand half the length of the lower.
Stridulating ridges present.	No stridulating ridges	Lower margin granulous, strongest at base of pollex.
Inner surface of hand with a small patch of hairs distally.	Inner surface of hand bare; a spot of brown near the gape.	Distal inner surface of hand tomentose.
Dactyli of walking legs with more than three spines on their posterior margins.	Dactyli of walking legs with three or less spines on their posterior margins.	Dactyli with 2-3 spine, but the third always very small.

## Family OCYPODIDAE. Subfamily MACROPHALMINAE.

## Genus CLEISTOSTOMA.

*Cleistostoma* de Haan, Siebold's Fauna Japonica, Crust., 1835, 26.

Logotype *Cleistostoma dilatata* (de Haan) = *Ocypode* (*Cleistostoma*) *dilatata* de Haan, tom. cit., 55, pl. xv., fig. 2. Type locality: Japan.

## CLEISTOSTOMA MCNEILLI \* sp. nov.

Pl. xxi., fig. 1.

Holotype male measuring 8 mm. in total carapace width.

Type locality.—Port Curtis, Queensland. December, 1929. The species occurs on mangrove and mud flats.

Description.—The carapace is smooth and bare; the regions are indicated, and a strong transverse ridge extends across the cardiac region. The antero-lateral margins are divergent posteriorly and have three teeth, including the outer orbital angle. The front is broad, its margin is sinuous, and produced downwards at the middle and at each end.

The chelipeds are equal in size. The manus is swollen, smooth and bare. The dactyli and immovable fingers are slender and gaping, and a single quadrate tooth is on the proximal half of each of the dactyli. The ambulatory legs are clothed with long hairs. The sternum is punctate.

## Subfamily SCOPIMERINAE.

## Genus ILYOPLAX.

*Ilyoplax* Stimpson, Proc. Acad. Nat. Sci., Philadelphia, x., 1858, 98 (44).

*Tympanomerus* Rathbun, Proc. Biol. Soc. Washington, xi., 1897, 164.

*Ilyoplax* Stimpson, Rathbun, Proc. Biol. Soc. Washington, xxxiv., 1921, 156 (footnote).

Haplotype *Ilyoplax tenellus* Stimpson. Type locality: Canton, China.

\* Named for my good friend F. A. McNeill, of the Australian Museum staff, whose able criticism has gone far in helping me with my studies.

*ILYOPLAX DENTATA* *sp. nov.*

Pl. xxii., figs. 5 and 6.

Holotype male measuring 6 mm. in total carapace width.

Type locality.—Port Curtis, Queensland. June, 1929. The species occurs on the mangrove mud flats.

Description.—The surface of the carapace is uneven; the regions are distinctly indicated. The antero-lateral margins are very short; a single obtuse tooth indents the antero-lateral margin behind the external orbital angles.

The eyes are large and the orbits are directed obliquely backward.

Strong ridges define the postero-lateral and posterior margins. The front is broad and strongly deflexed; the frontal lobes are well developed; the actual margin is entire. The hands are equal in size and smooth on the upper outer surfaces. The upper margin is marked by a line of even granules; a longitudinal ridge of granules ornaments the lower border of the immovable finger; this ridge extends along and fades out on the proximal portion of the manus, as well as on the distal extremity of the immovable finger.

The carpus of the cheliped is armed with a long spine at the inner angle. The tympana of the ambulatory legs are not strongly developed.

The fifth segment of the abdomen is characteristically constricted.

The species is related to *I. orientalis* (de Man).

Superfamily OXYRHYNCHA. Family MAJIDAE.

Subfamily MAJINAE.

*PRISMATOPUS* *gen. nov.**Prismatopus* is characterised by having the articles of the walking legs triprismatic in transverse section. The margins of the buccal frame, the external maxillipeds, the basal articles of the antennae and the lower margins of the outer orbital spines are produced into thin carinae. Basal articles of the antennae are narrow and deeply crenated, so that the orbits are incomplete below.*Prismatopus* is related to *Acanthophrys* A. Milne Edwards-Miers, but is readily separated by the following characters:—

1. The spine on the outer angle of the basal antennal article is directed transversely instead of forward.
2. The merus of the external maxillipeds is notched to receive the palp.
3. The articles of the walking legs are triprismatic in section.
4. The margins of the maxillipeds are produced into carinae.

*PRISMATOPUS ALBANYENSIS* *sp. nov.*

Pl. xxiii., fig. 3.

Holotype female measuring 22 mm. total carapace width \* by 15 mm. broad.

Type locality.—Albany Passage, North Queensland. Dredged in 9-12 fathoms. September, 1928.

Description.—The carapace is elongate, ornamented with few dorsal spines. Its surface is smooth, with a few scattered tubercles near the posterior border. Three spines lie in a longitudinal line along the mid-line of the carapace—one anteriorly, inclined on the anterior part of the mesogastric region; the second is placed further back on the same region; a

\* The measurements for the holotype have been taken longitudinally from the notch between the rostral spines to the posterior border of the carapace. The lateral measurement is made across the widest part—not at the tips of the lateral spines.

pair of spines placed in a transverse line on the cardiac region; a low ridge connects the bases of these spines with the spine on the mesogastric region. The hepatic area protrudes beyond the outer orbital angle and is armed with two equal sized spines directed backward. There are two outwardly directed, shorter more slender spines upon the meso-branchial region; the anterior of the two is directed transversely, and the posterior one is directed towards the postero-lateral margin.

The supra-ocular eave is developed distally into an acclivous spine; on upper surface a carina extends.

The outline of the basal antennal article is marked by sharp carinae, as also are the antennular fossae; the antero-lateral angles of the latter have a well-formed sharp spine, with a forward and downward inclination. The margins of the buccal frame are produced into thin, sharp carinae, similar to those on the antennal article.

The rostrum is formed of two divergent spines, fused at the base for a short distance; each is dorsally convex, but flat on the under surface.

The merus of the cheliped is flattened, and has the upper, outer margin produced into a carina which is broken into four subacute teeth by two sweeping curves; the lower margin is produced in a similar fashion, but has only two teeth. The carpus has three well marked longitudinal carinae. The manus is compressed and smooth and the margins are carinated; the dactylus and the immovable finger are acute at the tips and without teeth on their opposed margins.

The ambulatory legs are long and slender and triprismatic in section.

#### Genus PARAMITHRAX.

*Paramithrax* H. Milne Edwards, Hist. Nat. Crust., 1, 1834, 323.

Logotype *P. barbicornis* (Latreille), specified by E. Desmarest in Chenu, Encyc. Hist. Nat., 1858, 14. Type locality: Australasia.

#### PARAMITHRAX PARVISPINOSUS sp. nov.

Pl. xxiii., fig. 4.

Holotype female measuring 9.5 mm. in total carapace length.

Type locality.—North West Island, Capricorn Group, Queensland. May, 1930. The species inhabits the under surfaces of the living corals on the outer edge of the reef, where it covers itself with living sponges.

Description.—The carapace is longer than it is broad and less hairy than in *P. minor* Rathbun (*nec*. Filhol).\* The granules and spines on the dorsal surface are few in number; those present are confined for the most part to the gastric and cardiac regions. There is a well developed reflexed spine on the postero-external corner of the meso-branchial region; a smaller similarly shaped spine is placed on a lower plane further forward on the same region.

There are two well-developed acclivous spines on the posterior margin. The rostrum is narrow and composed of two broad divergent spines. The eye stalk is short and thick and the cornea is large. The basal article of the antennae has its antero-external angle produced laterally into a broad spine, clearly visible from a dorsal view. The lateral margins of the carapace are much less spinate than in the allied species *P. minor* Rathbun.

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\* *Paramithrax minor* Rathbun, Biol. Reslts., Endeavour, v., 1, 1918, 18.

## Explanation of Plate xxi.

*Cleistostoma mcneilli*.

- Fig. 1. Dorsal view of the holotype measuring 8 mm. in total carapace width. Port Curtis, Queensland.  
 „ 2. Ventral view of same. The abdomen and masculine appendages have been removed.

*Prolybia australiensis*.

- „ 3. Dorsal view of holotype measuring 7 mm. in total carapace width. Bottle and Glass Rocks, Port Jackson.  
 „ 4. Ventral view of same. Note the anemonies held in each chela.

*Lissomorpha haswelli*.

- „ 5. Dorsal view of the holotype measuring 9 mm. in total carapace width. Dredged off Gatcomb Head, Facing Island, Port Curtis, Queensland.  
 „ 6. Ventral view of same.  
 „ 6a. The maxillipeds of *L. haswelli*. Note the broad exopodite.

*Manella brevimana*.

- „ 7. Dorsal view of the holotype measuring 17 mm. in total carapace width. North West Island, Capricorn Group, Queensland.  
 „ 8. Ventral view of same. Note the healed-up wound near the larger cheliped.

## Plate xxii.

*Actaea capricornensis*.

- Fig. 1. Dorsal view of holotype measuring 13 mm. in total carapace width. North West Island, Capricorn Group, Queensland.  
 „ 2. Ventral view of same.

*Heteropilumnus granulimanus*.

- „ 3. Dorsal view of holotype measuring 12 mm. in total carapace width. North West Island, Capricorn Group, Queensland. Note the right half of the carapace has been denuded.  
 „ 4. Ventral view of same.

*Ilyoplax dentata*.

- „ 5. Dorsal view of holotype measuring 6 mm. in total carapace width. Port Curtis, Queensland.  
 „ 6. Ventral view of same.

*Cryptocnemus planus*.

- „ 7. Dorsal view of holotype measuring 6 mm. in total carapace width. Dredged in the lagoon at Lady Musgrave Island, Bunker Group.  
 „ 8. Ventral view of same.

## Plate xxiii.

*Gonioneptunus whiteleggei*.

- Fig. 1. Dorsal view of holotype measuring 35 mm. in total carapace width. Trawled within a radius of 10 to 15 miles off Newcastle, N.S.W. 40 to 50 fathoms. Trawler "Goolgwai." Collected by Captain K. Moller.  
 „ 2. Ventral view of same.

*Prismatopus albanysensis*.

- „ 3. Dorsal view of holotype length of carapace 22 mm.; breadth 15 mm. Dredged in Albany Passage, North Queensland.

*Paramithrax parvispinosus.*

- Fig. 4. Dorsal view of holotype measuring 9.5 mm. in total carapace length. North West Island, Capricorn Group, Queensland.

*Rathbunaria sculptissima.*

- „ 5. Dorsal view of holotype measuring 13 mm. in total carapace width. Thursday Island, Torres Strait.  
„ 6. Frontal view of same.

*Paraetisus globulus.*

- „ 7. Dorsal view of holotype measuring 43 mm. in total carapace width. Dredged off Gatcomb Head, Facing Island, Port Curtis, Queensland.

*Jonas leuteanus.*

- „ 8. Dorsal view of holotype measuring 30 mm. in total carapace width. Dredged near Lindeman Island, Cumberland Group, Queensland.

*Calvactaea tumida.*

- „ 9. Dorsal view of holotype measuring 21 mm. in total carapace width. From Spongodes. Dredged near the Sow and Pigs Reef, Port Jackson, N.S.W.

*Lyreidus australiensis.*

- „ 10. Dorsal view of holotype male measuring 44 mm. in carapace length. Taken within a radius of 10 to 15 miles off Newcastle, N.S.W. 45 to 50 fathoms. November, 1931. Captain Moller. Trawler "Goolgwai."

*Aeneacancer mollerii.*

- „ 11. Dorsal view of holotype measuring 54 mm. in total carapace width. Trawled near Montague Island, N.S.W.